Space Weather Forecast

Issued on Wednesday, 28 August 2024 at 12:18 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Isolated M-class flares and R1/R2 blackouts likely. Minor fast wind influence possible Day 2 (29 Aug).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity was at Low levels with only low to mid-level Common class flares observed.

There are ten sunspot regions on the visible disc. The largest and most complex regions on the disc lie in the southwest quadrant. All have undergone decay and simplification during the period with a subsequent reduction in flare activity. The remaining regions on the disc are either small or magnetically simple and mostly stable, however the new unnumbered region in the far southeast may reveal more complexity as it rotates further into view.

No Earth-directed Coronal Mass Ejections (CMEs) were observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar wind parameters indicated ongoing influence from a CME that arrived early on 27 Aug. Despite this solar wind speeds were slow, varying between 275-362 km/s. The Interplanetary Magnetic Field (IMF) was initially Moderate, but increased from 27/2200 UTC, becoming persistently Strong. The north-south component varied erratically between north and south directions initially, at weak to moderate strength. A prolonged period of moderate to strongly negative southward component was observed 27/2200-28/0730 UTC before becoming predominantly weakly negative late in the period.

Resultant Geomagnetic activity was initially Quiet to Unsettled (Kp2-3), but increased to reach G2/Moderate Storm (Kp6) levels between 28/0000-0300 UTC, before easing to Active (Kp4) to G1/Minor Storm (Kp5) levels from 28/0300-0900 UTC. Activity decreased to Quiet (Kp2) levels 28/0900-1200 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is forecast with Moderate-class flares likely and a slight chance of isolated Strong-flares occurring.

Solar Wind /Geomagnetic Activity: Ongoing CME influence from an arrival on 27 Aug is expected to decline in the coming 24 hour period. No other Earth-directed CMEs feature in the forecast. Mainly background solar winds are expected during the period, however, minor fast wind influence to slightly elevated levels is possible on Days 2 and 3 (29 and 30 Aug).

Geomagnetic activity is expected to be at Quiet to Unsettled levels, but with a chance of isolated Active intervals on Days 1 and 2 (28 and 29 Aug).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background, but there is a chance of this rising in response to any notable flares, especially from the regions in the western disc. This gives a slight chance of exceeding the S1 Minor Solar Radiation Storm level.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	5	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	65	65	65	65
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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